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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,335	08/01/2003	Zvi Yaniv	12179-P116US	4189

29444 7590 09/11/2006

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EXAMINER	
TSOY, ELENA	

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 09/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/633,335	YANIV, ZVI	
	Examiner	Art Unit	
	Elena Tsoy	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2006* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15 and 21-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 21-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Response to Amendment

Amendment filed on 8/9/2006 has been entered. Claims 1-15, and 21-30 are pending in the application.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Rejection of claims 1-15, and 21-30 are rejected under 35 U.S.C: 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been withdrawn due to amendment.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3, 5, 8, 15 stand rejected under 35 U.S.C. 102(e) as being anticipated by Dimitrov (US 20030013091) for the reasons of record set forth in paragraph 8 of the Office Action mailed on 5/9/2006 because in a process of forming a *chemical* adsorbate, a chemical reaction between the chemical species and substrate surface does not occur immediately, the chemical species has to be *physisorbed* onto the subsrate surface to let the reaction to occur. Therefore, *physisorption* of a chemical species onto the surface of nanoparticles is a first **necessary** step before being *chemically* adsorbed onto the surface of the nanoparticles. Also, the process **comprising** the step of physisorption does not exclude a further step of chemisorption.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-5, 8, 10, 11, 14, 21, 22, 25, 26, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al (US 5,990,479) in view of Dimitrov or Vossmeyer (US 6,458,327) for the reasons of record set forth in paragraph 10 of the Office Action mailed on 5/9/2006.

7. Claims 1-5, 8, 12, 15, 21, 22, 27, 29, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniels et al (US 20020004246) in view of Dimitrov or Vossmeyer for the reasons of record set forth in paragraph 11 of the Office Action mailed on 5/9/2006.

8. Claims 1-3, 5, 6, 8, 10, 11, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chee et al (US 6,544,732) in view of Dimitrov or Vossmeyer for the reasons of record set forth in paragraph 12 of the Office Action mailed on 5/9/2006.

9. Claims 1-3, 5, 6, 8, 10, 11, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barbera-Guillem et al (US 6,2617,79) in view of Dimitrov or Vossmeyer for the reasons of record set forth in paragraph 13 of the Office Action mailed on 5/9/2006.

10. Claims 2, 21, 25, 26, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dimitrov in view of Weiss et al or Daniels et al or Chee et al or Barbera-Guillem et al for the reasons of record set forth in paragraph 14 of the Office Action mailed on 5/9/2006.

11. Claims 6, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dimitrov/ Dimitrov in view of Weiss et al/Weiss et al in view of Dimitrov or Vossmeyer/Daniels et al in view of Dimitrov or Vossmeyer, further in view of Chee et al/Barbera-Guillem et al for the reasons of record as set forth in paragraph 9 of the Office Action mailed on 2/09/2006.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al in view of Dimitrov or Vossmeyer/Daniels et al in view of Dimitrov or Vossmeyer/Chee et al in view of Dimitrov or Vossmeyer/Barbera-Guillem et al in view of Dimitrov or Vossmeyer, further in view

of Harris et al (US 20040009911) for the reasons of record as set forth in paragraph 10 of the Office Action mailed on 2/09/2006.

13. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al in view of Dimitrov or Vossmeyer/Daniels et al in view of Dimitrov or Vossmeyer/Chee et al in view of Dimitrov or Vossmeyer/Barbera-Guillem et al in view of Dimitrov or Vossmeyer, further in view of West et al (US 6,530,944) for the reasons of record as set forth in paragraph 11 of the Office Action mailed on 2/09/2006.

14. Claims 12, 13, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al in view of Dimitrov or Vossmeyer/Chee et al in view of Dimitrov or Vossmeyer/Barbera-Guillem et al in view of Dimitrov or Vossmeyer, further in view of Daniels et al for the reasons of record as set forth in paragraph 12 of the Office Action mailed on 2/09/2006.

15. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al in view of Dimitrov or Vossmeyer/Daniels et al in view of Dimitrov or Vossmeyer/Chee et al in view of Dimitrov or Vossmeyer/Barbera-Guillem et al in view of Dimitrov or Vossmeyer, further in view of Ravkin et al (US 6,908,737) for the reasons of record as set forth in paragraph 13 of the Office Action mailed on 2/09/2006.

16. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dimitrov/ Dimitrov in view of Weiss et al/Weiss et al in view of Dimitrov or Vossmeyer/Daniels et al in view of Dimitrov or Vossmeyer, further in view of Harris et al for the reasons of record as set forth in paragraph 14 of the Office Action mailed on 2/09/2006.

17. Claims 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dimitrov in view of Weiss et al/Weiss et al in view of Dimitrov or Vossmeyer, further in view of Daniels et al for the reasons of record as set forth in paragraph 15 of the Office Action mailed on 2/09/2006.

18. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dimitrov/ Dimitrov in view of Weiss et al/Weiss et al/Daniels et al in view of Ravkin et al for the reasons of record as set forth in paragraph 16 of the Office Action mailed on 2/09/2006 for the same reasons as discussed above.

19. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dimitrov/ Dimitrov in view of Weiss et al/Weiss et al in view of Dimitrov or Vossmeyer/Daniels et al in

view of Dimitrov or Vossmeyer, further in view of West et al for the reasons of record as set forth in paragraph 17 of the Office Action mailed on 2/09/2006.

20. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dimitrov/ Dimitrov in view of Weiss et al/Weiss et al in view of Dimitrov or Vossmeyer/Daniels et al in view of Dimitrov or Vossmeyer, further in view of Chee et al for the reasons of record as set forth in paragraph 18 of the Office Action mailed on 2/09/2006.

Response to Arguments

21. Applicants' arguments filed 8/9/2006 have been fully considered but they are not persuasive.

(A) Applicants argue that Dimitrov does not, teach or suggest physisorbing an analyte species directly on a nanoparticle, nor does Dimitrov teach or suggest detecting changes in the photoluminescence of the nanoparticle as a result of physisorbing an anatyte onto its surface—as required by Claim 1.

The Examiner disagrees. The transitional term "comprising" is inclusive or open-ended and **does not exclude** additional, unrecited elements or method steps. See MPEP 2111.03 [R-3]. Therefore, the method of Claim 1 is open-ended and **does not exclude** additional, unrecited method steps such as *chemisorption* step. As was discussed above, in a process of forming a *chemical* adsorbate, a chemical reaction between the chemical species and substrate surface does not occur immediately, the chemical species has to be *physisorbed* onto the subsrate surface to let the reaction to occur. Therefore, *physisorption* of a chemical species onto the surface of nanoparticles is a first *necessary* step before being *chemically* adsorbed onto the surface of the nanoparticles, as evidenced by US 6,778,165 to Hubby, Jr. et al showing that the species are first **physisorbed** on the substrate and then mildly heated to produce the sulfur-gold bond, with the chemisorbed species being more tightly bound than the physisorbed species (See column 4, lines 1-7) and US 5,457,073 to Ouellet showing that water vapour is first physically absorbed by SOG and is continuously and slowly chemically absorbed; the longer the SOG film exposure to ambient air, the more water vapour is chemically absorbed (See column 7, lines 37-64).

(B) Applicants argue that Dimitrov does not anticipate the claims because Dimitrov does not show solid-phase examples.

The argument is unconvincing because it is held that patents are relevant as prior art for all they contain. See Celeritas Technologies Ltd. v. Rockwell International Corp., 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998) (The court held that the prior art anticipated the claims even though it taught away from the claimed invention. "The fact that a modem with a single carrier data signal is shown to be less than optimal does not vitiate the fact that it is disclosed."). NONPREFERRED EMBODIMENTS CONSTI-TUTE PRIOR ART. Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. See MPEP 2123.

(C) Applicants argue that Weiss et al do not teach physisorption.

The argument is unconvincing for the reasons discussed above.

(D) Applicants argue that Vossmeyer teaches an electronic sensor not one based on photoluminescence.

However, Vossmeyer is a secondary reference which is relied upon to show that **adsorption** of an analyte (a detectable substance) to a nanoparticle of 20 nm or less (See column 3, lines 36-40) may be carried out in a liquid or gas-phase (See Abstract; column 5, lines 34-45). Therefore, it is irrelevant whether an electronic sensor based or not on photoluminescence.

(E) Applicants argue that Daniels et al do not teach claimed invention because Daniels et al require a targeting compound *bound* to the nanocrystals and thus, the analyte is not in direct contact with nanocrystals.

The Examiner respectfully disagrees with this argument. First of all, the claims do not recite negative limitations of non-binding. Secondly, the "direct contact" does not mean that there should not be any binding.

(F) Applicants argue that in Chee et al or Barbera-Guillem et al nanocrystals do not interact directly to biomolecules.

The Examiner respectfully disagrees with this argument because the claims do not recite "direct interaction".

(G) Applicants argue that modification of Chee et al with Vossmeyer would change the principle of operation.

The argument is unconvincing because Vossmeyer is relied upon **only** to show that **adsorption** of an analyte (a detectable substance) to a nanoparticle of 20 nm or less (See column 3, lines 36-40) may be carried out in a liquid or gas-phase (See Abstract; column 5, lines 34-45).

Therefore, Vossmeyer would change the principle of operation of Chee et al.

Conclusion

22. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy
Primary Examiner
Art Unit 1762

ELENA TSOY
PRIMARY EXAMINER

September 6, 2006